

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-6 are presently active in this case. The present Amendment amends Claims 3-4; and cancels Claims 7-12. The above amendment shows the amended claims in clean form, the attachment shows a marked up copy for the Examiner's convenience.

In the outstanding Office Action, Claims 7-12 were withdrawn from consideration. Claims 1-2 and 5-6 were rejected under 35 U.S.C. § 102(e) as being anticipated by Hokodate et al. (U.S. Patent No. 6,353,203).

However, Claims 3-4 were indicated as allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. In response, Claims 3-4 are rewritten in independent form.

In response to the withdrawal of Claims 7-12 from consideration, these claims are canceled.

In response to the rejection of Claims 1-2 and 5-6 under 35 U.S.C. § 102(e), Applicants respectfully request reconsideration of this rejection and traverse the rejection as discussed next.

Briefly recapitulating, Applicants' invention relates to an optical scanning device including a light source emitting a light beam; a scanning optical unit deflecting the light beam from the light source and focusing the deflected light beam to form a light spot on a scanned surface, and a temperature unit that detects the temperature of the scanning optical unit and its neighboring locations. The device also includes a temperature compensation unit which adjusts the focal-point position of the light beam on the scanned surface in accordance with a change in the temperature detected by the temperature detection unit. The claimed temperature compensation unit adjusts the focal-point position of the light beam *by directly*

*varying a focusing effect of a corrector lens on the light beam from the light source by a controlled amount of movement of the corrector lens along its optical axis that corresponds to the temperature change.*¹ As recited in claim 2, the temperature compensation unit can adjust the focal-point position of the light beam with respect to at least one of the main scanning direction and the sub-scanning direction in accordance with the temperature change.

The outstanding Office Action asserts that Hokodate et al. discloses an optical scanning device which includes a light source (1), a scanning optical unit including scanning mirrors (3, 4) and a converging lens (20), a temperature detection unit (26), and a temperature compensation unit including control circuit (27), driver (28) and a corrector lens (24).²

However, the lens 24 disclosed in Hokodate et al. (Fig. 1; column 17, lines 38-57) is a movable lens included in the converging lens (the $f\theta$ lens) 20. In Hokodate et al., the focusing of the laser beam L on the scanned surface W is executed according to a change in the position of the movable lens 24 in the direction of the optic axis. Clearly, the movable lens 24 is different from the claimed corrector lens. Indeed, it appears that when the position of the movable lens 24 in the direction of the optic axis is changed, the $f\theta$ characteristics (the constant-velocity characteristics) of the converging lens 20 are varied.

In Hokodate et al.'s optical scanning device, focusing is executed according to a change in the position of the movable lens 24 in the direction of the optic axis, *not* "by directly varying a focusing effect of a corrector lens on the light beam ... by a controlled amount of movement of the corrector lens along its optical axis that corresponds to the temperature change," as recited in Applicants' independent claims. Furthermore, a person of ordinary skill in the art would find the Hokodate et al. optical scanning device unsuitable for

¹ See MPEP 2173.05(g) ("A functional limitation is an attempt to define something by what it does, rather than by what it is ... There is nothing inherently wrong with defining some part of an invention in functional terms. ... A functional limitation *must be evaluated and considered*, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." Emphasis added.)

² See outstanding Office Action at page 3.

adjusting "the focal-point position of the light beam with respect to at least one of a main scanning direction and a sub-scanning direction in accordance with the temperature change," as recited in Applicants' Claim 2. Therefore, the cited prior art fails to teach or suggest the claimed temperature compensation unit, which adjusts the focal-point position of the light beam by directly varying the focusing effect of the corrector lens by a controlled amount of movement of the corrector lens which corresponds to the temperature change detected by the temperature detection unit. The cited prior art thus fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1-2, and 5-6 are believed to be patentably distinct over the cited prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections based on the Hokodate et al. patent.³

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-6 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599
Philippe J. C. Signore, Ph.D.
Registration No. 43,922



22850

Tel. (703) 413-3000
Fax (703) 413-2220
GJM/PJCS/rtr

³ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Marked-Up Copy
Serial No: 09/716,949
Amendment Filed on: 9-19-02

IN THE CLAIMS

Please cancel Claims 7-12 without prejudice.

Please amend Claims 3-4 as follows:

--3. (Amended) [The] An optical scanning device [according to claim 1] comprising:
a light source emitting a light beam;
a scanning optical unit deflecting the light beam from the light source and focusing
the deflected light beam to form a light spot on a scanned surface, the scanned surface being
scanned by the light beam from the scanning optical unit;
a temperature detection unit detecting a temperature of the scanning optical unit and
its neighboring locations; and
a temperature compensation unit adjusting a focal-point position of the light beam on
the scanned surface in accordance with a change in the temperature detected by the
temperature detection unit, the temperature compensation unit adjusting the focal-point
position of the light beam by directly varying a focusing effect of a corrector lens on the light
beam from the light source by a controlled amount of movement of the corrector lens along
its optical axis that corresponds to the temperature change,
wherein the temperature compensation unit includes a memory that stores a table defining a relationship between the temperature change and a corresponding focal-point deviation of the light beam on the scanned surface, the temperature compensation unit adjusting the focal-point position of the light beam based on the focal-point deviation read from the memory in response to the temperature change.

4. (Amended) [The] An optical scanning device [according to claim 1] comprising:
a light source emitting a light beam;
a scanning optical unit deflecting the light beam from the light source and focusing
the deflected light beam to form a light spot on a scanned surface, the scanned surface being
scanned by the light beam from the scanning optical unit;
a temperature detection unit detecting a temperature of the scanning optical unit and
its neighboring locations; and
a temperature compensation unit adjusting a focal-point position of the light beam on
the scanned surface in accordance with a change in the temperature detected by the
temperature detection unit, the temperature compensation unit adjusting the focal-point
position of the light beam by directly varying a focusing effect of a corrector lens on the light
beam from the light source by a controlled amount of movement of the corrector lens along
its optical axis that corresponds to the temperature change,
wherein an integrated circuit board having a function that is different from a
temperature compensation function is provided, the temperature detection unit being
integrally formed on the integrated circuit board.--